ATTACHMENT D – TECHNICAL REQUIREMENTS

1.0 Background

Public health surveillance is the ongoing, systematic collection, analysis, and interpretation of health-related data. Surveillance serves many public health functions, such as supporting case detection and public health interventions, estimating the impact of a disease or injury, determining the distribution and spread of illness, evaluating prevention and control measures, and facilitating planning. One important public health function of surveillance is outbreak detection. Outbreaks have typically been recognized either based on accumulated case reports of reportable disease or by alert clinicians or laboratorians who bring clusters of diseases to the attention of public health. Driven by the threat of bioterrorism and the increasing availability of electronic health data, new surveillance methods have been developed and implemented in public health jurisdictions with the goal of early and complete detection of outbreaks. In general, these new systems, loosely termed "syndromic surveillance", use data that are not diagnostic of disease but which might provide an indication of the early stages of an outbreak that may be natural or intentional (i.e. – bioterrorism). Hospital emergency department chief complaint data are one data type used by public health for syndromic surveillance.

Since 2004, the Indiana State Department of Health has partnered with Regenstrief Institute, Inc. to collect emergency department chief complaint data from 76 Indiana hospitals pursuant to Ind. Code §16-19-10-8 and 410 IAC 1-2.4 (see Attachment E). Pursuant to the rule, hospitals with emergency departments must report specified information to the ISDH electronically and must be compliant with the rule on or before January 1, 2011.

2.0 Goals

• Maintain all (76) current hospital connections and connect the remaining hospital emergency departments (46) prior to January 1, 2011. At this time, there are 122 hospitals with emergency departments in Indiana.

• Capture, at a minimum, all hospital emergency department encounter information as required by 410 IAC 1-2.4-8.

• Minimize implementation and ongoing costs due to declining federal grant budgets.

• Utilize fully automated systems that require no manual intervention to conduct the electronic transfer.

• Receive records in near real-time or within a maximum of three (3) hours of their availability in the hospital's system.

3.0 Assumptions

• The ISDH will assist with the engagement of hospitals and in providing hospitals with written materials and answering questions concerning the Public Health Emergency Surveillance System (PHESS).

• Given the deadline for compliance with the rule is January 1, 2011, and the fact that ISDH is connecting hospitals to PHESS at no charge to the hospitals, hospitals with emergency departments who are not yet connected to PHESS will be cooperative.

• The vendor will be responsible for working with each hospital to develop a mechanism of data extraction and transmission that is compatible with the hospital's existing IT structure.

• The vendor will be responsible for the provision of any necessary training of hospital and ISDH staff regarding the operation of the system.

• All 122 hospitals will be expected to have live data feeds no later than January 1, 2011. As between the 76 currently connected hospitals and the 46 hospitals currently not connected to PHESS, priority should be given to transitioning the 76 currently connected hospitals to the system, if applicable, no later than August 9, 2010.

• All data provided by or for the State remains the property of the State.

4.0 System Requirements

• The system must make use of industry standard security features, such as encryption and use of VPN technology.

• The system must be able to scale to increasing hospital and patient loads.

• The system must ensure data integrity, including recognition and automatic resend of missed transmissions from hospitals. The system must provide for fault tolerance, including redundancy and UPS or battery back-up for key components.

• For any third party software which will be executing on ISDH hardware, the vendor must obtain any required licenses on behalf of the ISDH.

• The system must allow for message processing to be customized on a per hospital basis. ISDH must have the ability to specify and modify any coding algorithms used. Standard messaging protocols (HL7) should be used where appropriate.

5.0 System Documentation

A detailed system architecture and design document is required. Any future changes to the system or system documentation would be approved in writing by ISDH prior to the change being implemented. The vendor shall provide a description of their change control process including any forms. The system documentation shall include, at minimum:

- A thorough description of the proposed system, including system diagrams.
- The hardware configuration and physical location, as well as whether the hardware will be dedicated to ISDH or shared. If shared, describe the other applications and users of the hardware. Describe the physical security of the facility or facilities. Describe any shared use of the facility or facilities.
- A thorough description of all software components, including operating systems, programming languages, development environments, database management systems, and third party libraries. State the minimum hardware and software configurations needed.
- A description of processing algorithms used.
- A description of any relevant licensing issues.
- A description of the security features of the system, such as encryption, use of virtual private network (VPN) technology, etc.
- A description of the system's ability to scale to increasing hospital and patient loads.
- A description of how the system will ensure data integrity, including recognition of missed transmissions from hospitals, and how the system provides for fault tolerance.
- A description of the methodology used for development or customization including roles and responsibilities, activities, and tasks.

As much as possible, the ISDH desires ownership of all source code used in the system. This includes all reference tables and data conversion specifications. The vendor must ensure that upon expiration or termination of the contract, that transition of the system to ISDH or another vendor will be accomplished with minimal interruption.

Documentation, including hardware specifications, system documentation, source code, software algorithms, and anything required to duplicate the system should be provided by the vendor at the time of full implementation of the system.

If a licensing arrangement is proposed, the State requests that a copy of the source code be held in escrow. Any new version or upgrade costs not included in maintenance or support costs must also be disclosed and described (e.g. – frequency, current/typical costs).

If there is a human interface, the vendor must validate that the service conforms to the Assistive Technology Policy (Section 508). This may be done by submitting a Voluntary Product Accessibility Template (VPAT) or completing the Assistive Technology Compliance Evaluation Form (available from IOT).

6.0 Support Plan

A detailed support plan is required. The vendor is responsible for the complete turn-key engineering of the system and will fully operate and maintain the system from system acceptance by ISDH through the duration of the contract. During this period, the vendor must actively monitor and report system health to ISDH. Describe how maintenance will be applied (e.g. – fixes, enhancements, etc.). The vendor must ensure that no outages exceed three (3) hours and ensure that no data is lost. Describe how this requirement will be met and how it may involve hospital and/or ISDH personnel. In the event of a system outage, describe your notification, response, escalation, and resolution communication procedures. For each step provide a point of contact and time frames for notification of ISDH personnel. If support is provided through a help desk, state: when it is available; if access to the help desk is by telephone or e-mail; if by telephone, whether a toll free number is provided; and where help desk operators are located. Include a general resolution process for post-production data issues identified by ISDH. These issues could include missing, incomplete, or inaccurate datasets. Include a point of contact, escalation process, and resolution communication procedures with applicable time frames. Describe your disaster recovery plan. Provide any hardware, software, and service warranties offered. Include a standard service level agreement, if applicable. The vendor must notify the ISDH forty-eight (48) hours prior to any anticipated service interruptions. Such service interruption cannot last more than three (3) hours without the express written agreement of the ISDH. The vendor is responsible for the provision of any necessary training of hospital and/or ISDH staff regarding the operation of the system. Describe the form of such training (e.g. – web-based, instructor led).

7.0 Project Plan

A detailed project work plan is required. The plan must contain all significant tasks and steps required for implementation of the system, including acceptance testing and post-production support. Tasks shall be identified and described in sufficient detail such that their acceptance may be objective. The plan shall identify timeframes for each task, assigned resources by name and/or title, quality assurance checkpoints, and all major project milestones. A master project schedule shall be included that clearly delineates work responsibilities, expectations, and tasks to be performed by the vendor, ISDH, and the hospitals.

8.0 Staffing Plan

The staffing plan shall include an organization chart with reporting relationships of project team members and other key personnel. The vendor must propose the appropriate quality and quantity of staff to ensure successful completion of the project, including project management, implementation, support, and training. Vendor shall clearly identify individuals, where possible, and their proposed roles for the duration of the project. Vendor shall provide the maximum hourly rate for all personnel resources used to develop, customize, and maintain the system. Resumes and references for key individuals should be provided. Key staff should have previous experience in similar projects and have an understanding of hospital data systems and data structures. Previous experience in working with public health agencies on similar projects is desired.